

**CITY OF BALTIMORE
DEPARTMENT OF PUBLIC WORKS
BUREAU OF SOLID WASTE**

**TEN YEAR SOLID WASTE MANAGEMENT PLAN
JULY 2002**



***CHAPTER 5
PLAN OF ACTION***

5.0 PLAN OF ACTION FOR SOLID WASTE MANAGEMENT

State regulations for the development of comprehensive solid waste management plans require that Chapter 5 contains a Plan of Action for the succeeding ten-year period with respect to all types of solid waste and all phases of solid waste management. This Plan of Action is to be based on the background information and assessment presented in the preceding chapters of the plan. The overall purpose of the entire Plan of Action is to demonstrate that the existing and/or planned solid waste management system in the jurisdiction is adequate to support proposed development or redevelopment.

In conformance with these requirements, the City's Ten-Year Solid Waste Management Plan of Action is presented in the following sections.

5.1	Solid Waste Disposal Systems	5.4	Implementation Schedule
5.2	Solid Waste Facilities	5.5	Financing Waste Disposal Systems
5.3	Managing Wastes	5.6	Changes Due to Assessment

In general, the City expects to retain the mixed public/private solid waste management system described in Chapter 3 and elsewhere in this plan for the next ten years. Since the City's primary concern is with the public component of the system, its Plan of Action focuses on this area in each section of this chapter. The private component of the system is addressed in each of these sections as well, but only in a more limited way.

Due to the fact that much of the City's solid waste disposal system is newly implemented, the Plan of Action for the City has, essentially, already been presented in the previous chapters. In this chapter, an attempt will be made to contrast the components of this present system with components in the previous system, giving the expectations that these changes present.

A reasonable assessment of the present solid waste disposal system is impossible at this point as well, due to the new and developing nature of the system. However, this chapter will detail as much as possible the tools it uses for the assessment of its solid waste disposal system.

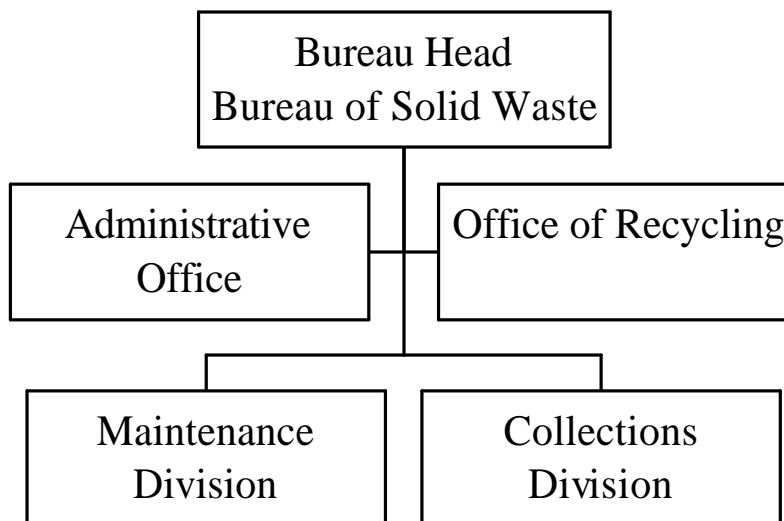
5.1 SOLID WASTE DISPOSAL SYSTEMS

5.1.1 Public Waste Disposal System History

From 1995 until Fall of 2000, the Bureau of Solid Waste generally operated in the manner reflected in the organizational chart presented in Figure 5-1. This bureau operated with two divisions, a Maintenance Division, and a Collections Division and had an administrative component. There also was an Office of Recycling that was under the auspices of the Director of Public Works and whose Coordinator was appointed by the Mayor, but operationally

worked within the framework of the Bureau of Solid Waste.

FIGURE 5-1
1999 BUREAU OF SOLID WASTE ORGANIZATIONAL CHART



The key functions of these Divisions and Offices were as follows:

I. Collections Division: This Division was responsible for regular collections of mixed refuse, recycling, corner cans, condominiums, and municipal office buildings and park properties, as well as the interception and removal of debris from the Baltimore Inner Harbor, and local waterways.

II. Maintenance Division: This Division was responsible for citywide cleaning, including park properties, mechanical sweeping, rat eradication, the removal of eviction chattel, fire debris, graffiti removal, special events cleaning and all cleaning services related to the “Mayor’s Monthly Clean-Up” program and the “Mayor’s Community Pitch-In” program. This program included the systematic cleaning of streets, alleys, lots, and removal of bulk trash on a monthly basis for every neighborhood of the City.

III. Office Of Recycling: This Office was responsible for the promotion and growth of Baltimore’s recycling program, overseeing the City’s recycling contracts, the education of citizens about sanitation responsibilities, and outreach programs to community groups, schools, churches and businesses.

IV. Administrative Office: This Office was responsible for budget, personnel, communications and customer service. Within this office was the responsibility for the operation of the City’s disposal facilities, including the Northwest Transfer Station (NWTS) and the Quarantine Road Sanitary Landfill (QRS�). It also administered all operations pertaining to the implementation of capital improvement projects and provided the technical support and

coordination of program planning, analysis and evaluation throughout the Bureau.

5.1.2 Public Waste Disposal System Future

The present organization of the Bureau of Solid Waste is expected to improve the efficiency of the City's solid waste disposal system by basically de-centralizing its collections operations. Bureau supervisors now are given resources to perform residential waste collection, bulk waste collection and street cleaning services rather than having different entities perform each function. A greater emphasis has been put on enforcing the City's regulations regarding citizens' disposal of waste, giving the City a better handle on its efforts to make and keep the City clean. While there are no guarantees as far as maintaining this organizational structure over the period covered in this plan, the City will assuredly look to improve its solid waste management system in the most efficient and practical ways possible.

Any discussion of the future of the City's solid waste disposal system must deal with fiscal resources or the lack thereof. A well managed and cost effective system is the goal of the City and it will utilize many tools to do so.

The City plans to take the following actions in order to increase the collection of recycling and improve the efficiency of its mixed refuse collection/transport system.

1. The City will evaluate the possible adoption of a one-plus-one collection system: once a week trash collection and once a week recycling collection. One-plus-one may be phased in by districts as recycling participation increases.
2. The City plans to utilize computer technology to evaluate the existing system of collection routes, crew assignments and work assignments to determine whether the collection system can be made more efficient.
3. The City will continue to support legislative action to change the way in which eviction chattel is managed. It will become the responsibility of landlords to load eviction chattel on trucks and deliver it to a City solid waste facility. The City will no longer provide storage of eviction chattel. Landlords will not be charged a tipping fee for the disposal of eviction chattel.
4. The City will continue to educate citizens with regards to sanitation and recycling through outreach efforts.
5. The City will sponsor a promotion of Baltimore's Recycling Program through religious organizations. Under the banner of "Recycle Religiously", religious leaders will ask their congregations to increase their recycling efforts. Sample blue and brown bags will be distributed along with recycling information. Religious institutions will be offered free collection of their recycling on the regular City collection schedule.

6. The City will expand its collection of recycling to all public schools in the system by 2003. The educational component of the program will be similarly expanded to encourage possible inclusion in the school curriculum and student community service.
7. Based on the findings of studies completed in the next two years, the City will identify any additional actions that it needs to take in the following ten years to increase the collection of recycling and improve collection systems efficiency. If any such actions represent significant changes in the existing system, these changes will be reflected in the next update to the City's Ten Year Solid Waste Management Plan.

5.1.2.1 Technology

The largest areas for future development regarding the solid waste disposal system are technology and information systems. With the development of the City's geographical information system (GIS), a number of possibilities exist for the use of this technology to improve solid waste collection and disposal. One of which would be to place satellite-tracking devices in collection vehicles as a means of being cognizant of where the vehicles are in relation to the completion of their routes or tasks. Analysis of this information will improve efficiency and customer service for solid waste collection.

There are many companies that market software that is compatible with the City's Arc View GIS system that will establish or refine existing solid waste collection routes. The capabilities of these software packages are and will continue to be analyzed to see if they will be useful in our future waste collection operations.

5.1.2.2 Routing

There has not been a full scale re-routing of Baltimore City mixed refuse collection routes in over twenty years. In the last twenty years, there has been a significant change in the demographics of the City. In general, fewer people live in the City and those who do have moved into the Northern regions of the City from the center City areas. There has been a general reduction of the density of housing in the City, with the continuing demolition of high rise public housing and the erection of more single family homes. All of these changes affect the management of solid waste in the City, yet no drastic changes to the collection routes have been made.

With the addition of the technology tools listed in § 5.1.2.1, the City is prepared to undertake a significant revamping of waste collection routes. However, there are social barriers existing that make this a difficult undertaking. The first is that a complete re-routing of the City will assuredly change the present trash collection days of many homeowners. There is a segment of the population that will strongly resist a change in trash collection days that they may have kept for literally fifty years.

The second social barrier is related to a proposed reduction of trash collection services in certain parts of the City. While this approach is taken in surrounding cities such as Washington, DC and Philadelphia, PA, as well as every suburban jurisdiction of the City, there is a very strong perception that this approach would not work in the City and would endanger the cleanliness of the City. Additionally, the City Code mandates that the City collects solid waste from its citizens twice a week, thus erecting a legal barrier to the implementation of this plan, as well.

Generally, a more efficient waste collection system is dependent on the City's ability to make its collection routes as efficient as possible. Therefore, these barriers and issues must be addressed in order to implement a re-routing plan that will ensure the most proficient solid waste disposal system possible.

5.1.3 Private Solid Waste Disposal System

As discussed previously, the City has little control over the private component of the solid waste management system in the City. Its capacity for collection and disposal of mixed refuse, scrap tires, miscellaneous solid waste, medical waste and rubble/land-clearing debris appears to be adequate.

The City's role in the private collection and disposal system is limited. However, the City plans to continue working through the Northeast Maryland Waste Disposal Authority to ensure that private recycling is being maximized in the Baltimore region and that documentation continues to satisfy State requirements. The City also plans to encourage the continued recycling of materials and their conversion to useful products. And the City will continue to evaluate provisions for incineration of medical wastes based on overall City export/import policy and State assessment of on site hospital incinerators.

5.2 SOLID WASTE DISPOSAL FACILITIES

The assessments conducted of the City's solid waste disposal facilities indicate that they are more than adequate to accommodate the solid waste expected to be generated by the City over the period covered by this plan. Still, there are several modifications that are to be made to these facilities to improve and facilitate their operations.

5.2.1 Quarantine Road Sanitary Landfill

As discussed in Chapter 4 of this Plan, the City is responsible for disposing of approximately 577,000 tons of solid waste per year. Mixed refuse and its incinerated remains represent by far the largest category of solid waste that the City handles. In addition to mixed refuse, the City is responsible for disposing of all other debris in City right-of-

ways. QRSL's planned capacity is sufficient to accommodate these wastes, as well as the privately collected wastes at current levels of usage during the ten-year planning period.

The City is addressing its needs for landfill capacity in the new century. The need for such capacity is expected to continue for the foreseeable future and the complexity and cost involved in arranging for it is so great that ample lead-time is essential.

The final cell of QRSL, Phase II of Cell 6, will be opened during this period. Phase I of Cell 6 is operational at this point but is rapidly filling up. There is a consultant on board that is designing this cell in preparation for its construction in early 2003.

It is in the best interests of the City to extend and preserve the landfill capacity at QRSL. The following steps have been established to accomplish that goal.

1. The City will continue to divert building materials and reusable construction materials from the landfill to The Loading Dock, Inc. The Loading Dock is a non-profit organization providing these materials to housing rehabilitation groups and low-income families.
2. The City will continue to conduct regular flyovers of QRSL to monitor the capacity of the landfill.
3. The City will make every effort to coordinate with BRESCO the acceptance of charitable waste at no charge.
4. The City intends to continue to assess other alternatives for meeting disposal needs into the next century. Alternatives to be considered include developing a regional landfill in an adjacent county, exporting wastes, and maximizing the QRSL's life span.

With regard to Federal and State environmental laws and regulations governing landfills, the City has a good record of compliance at QRSL. In order to extend this record for the next ten years, the City intends to take the following actions:

1. The City plans to work closely with the Maryland Department of the Environment (MDE) to assure QRSL is operated in conformance with State and Federal regulations.
2. Based upon the consultant's updated report, the City has prepared a long-range financing plan to meet the costs of closure, groundwater monitoring and any other mandated improvements. This plan will be periodically reassessed.
3. The City acquired a National Pollution Discharge Elimination System (NPDES) permit and plans to implement any improvements relating to storm water runoff at QRSL that are required by State agencies to remain in

PLAN OF ACTION

compliance with the discharge permit for this facility.

4. The City plans to continue the performance of routine landfill inspections to assure quality control.
5. The City has begun a groundwater monitoring program at QRSL to replace MDE's former program. This monitoring program is to comply with Federal regulations.
6. The City, in partnership with the Northeast Maryland Waste Disposal Authority and BRESCO has participated in the air pollution rehabilitation of the BRESCO facility. The City will continue to work in this partnership to ensure the safety of the City's environment.
7. The City will continue the projected future incineration capacity needs of the Baltimore region, including the impact of the reversal of the Incinerator Moratorium and the impact of out of state transfer.
8. The City plans to utilize its shredder at the landfill to reduce the volume of bulky material being landfilled and to extend the life of the landfill.
9. The City will evaluate alternative intermediate and final cover materials at QRSL through approved pilot projects.
10. The City will entertain parties who are interested in the installation of a landfill gas extraction system at the landfill. This will allow for the safe emission of these gases into the environment or the marketing these gases to willing consumers.

5.2.2 Northwest Transfer Station

Construction on improvements to the Northwest Transfer Station (NWTS) will commence in early 2003. However, with consideration being given to selling or leasing the transfer station to a private entity, the future of the NWTS beyond that is unclear. What is clear is that the City plans on utilizing this facility as part of its solid waste disposal system over the next ten years.

5.2.3 Baltimore Refuse Energy Systems Company (BRESCO)

There are agreements between the City and BRESCO through the Northeast Maryland Waste Disposal Authority that carry throughout the period covered by this plan. BRESCO will continue to be the primary disposal facility for

solid waste collected by the City over the next ten years. Accordingly, QRSL will be the final destination for the ash residue that is produced through the incineration portion of the waste-to-energy process.

5.2.4 Other Private Disposal Facilities

The City expects to maintain its position of allowing private companies to initiate waste acceptance and transfer facility projects to serve the private sector based on the assessment of supply and demand. The City plans to continue to review such private projects on a case-by-case basis according to City, State and Federal laws, zoning requirements, community sentiment and conformity with the City's overall policies on import and export of solid waste.

5.3 MANAGING WASTES

As part of the Ten-Year Solid Waste Management Plan, the City has developed a plan of action for each of the waste streams it will encounter over the next ten years. The strategy for each waste stream is described below.

5.3.1 Residential Waste

The projections for the amount of residential waste to be managed over the ten year period covered in this plan is based primarily on the projected population in the City during this period (see Chapters 2 and 3). In general, it is expected that the residential population in the City will decrease over the next ten years, although the rate of decline will be less than in previous years. Thus, it is a reasonable assumption that residential waste generation will similarly decline. With these considerations in mind and the legal obligation of the City to supply residential waste collection, the City of Baltimore has and will continue to provide adequate residential waste management.

Outside of improving routing, the City will continue to introduce new collection and disposal equipment into the fleet of cleaning apparatuses used by the Bureau of Solid Waste to improve services. The City will also continue to utilize routine inspections and performance measurements to improve customer services. The City will especially use the CITISTAT performance review system to assess and improve its operations.

5.3.2 Commercial Waste

Commercial waste, which includes institutional and industrial (non-hazardous) wastes are generally managed by private entities in the City. Our projections show a steady decline in the generation of commercial waste throughout the next ten years. With over 500 private hauling operations currently permitted to collect and dispose of waste in

PLAN OF ACTION

the City and the existence of state-of-the-art disposal facilities in and near the City, the management of commercial waste is securely established for the next ten years.

5.3.3 Land Clearing and Demolition Debris (Rubble)

An overall increase in land clearing and demolition debris is projected over the next ten years. A huge increase is expected over the first five years after which it is expected to level off and decline over the next five years. This is based on a projected increase in building demolitions within the next several years. It is expected that private recycling companies that use rubble in their recycling processes will continue to thrive and be the first disposal option of many businesses that will be disposing of this debris. Otherwise, QRSL has the capacity and ability to handle the increase rubble.

5.3.4 Controlled Hazardous Substances

Those who generate controlled hazardous substances are required by State law to properly handle and dispose of this waste. This waste is shipped out of Maryland for final disposal. There are no facilities in the City or State that handles these wastes, nor are there any places that are projected to handle these wastes in the period covered by this plan.

The Bureau of Solid Waste will continue its successful recycling programs and add others as needed. The City will continue to hold its Household Hazardous Waste Collection Day twice a year. Citizens will drop off selected household hazardous waste at the designated location. Long-term planning for a comprehensive regional program will continue at the regional level. Educational efforts to encourage the reduction and alternatives to household hazardous waste will be intensified.

5.3.5 Dead Animals

The disposal of dead animals is the one area where there is not a firm plan of action in place for the next ten years. The City is currently considering long range alternatives for the disposal of animal carcasses. The cost of utilizing private incinerators is prohibitively expensive over a long period of time in comparison with the costs incurred in contracts with Valley Protein.

The most likely scenario is that the City, possibly in partnership with other members of the Northeast Maryland Waste Disposal Authority, will construct a crematorium for the dead animals. However, building this facility in the

City may be difficult due to a moratorium that exists on the building of incinerators. It is likely that an agreement will be reached to allow the construction of this facility in the near future.

5.3.6 Bulky or Special Wastes

In discussing large appliances and scrapped automobiles, the assumption is that the generated waste stream will remain relatively constant over the period covered by the plan. Automobiles are scrapped by private concerns and the City does not have hard evidence regarding the numbers these companies are capable of handling. However, with the market for scrap steel and aluminum continuing to thrive, it is reasonable to believe the ability to handle these automobiles will remain constant throughout the next ten years.

Appliances are primarily collected by the City and given to recyclers for the re-use of the material. Inquiries by private companies into acquiring a contract to have the City deliver appliances to them indicate that there is and will continue to be a strong market for this material.

5.3.7 Vehicle Tires

The City recognizes that private recyclers of scrap tires currently operate in the City. It is also recognized that a statewide system for scrap tire processing has been developed. The City expects that continued development and refinement of the State authorized scrap tire processing industry will take place over the next ten years. The City will evaluate the renewal or re-bidding of its scrap tire contract accordingly.

5.3.8 Treatment Plant Sludges and Septage

The City expects that at least half the 182,000 wet tons of sludge generated annually at the Back River Wastewater Treatment Plant will be treated and stabilized at the on site heat/drying pelletization plant. Of the remaining sludge approximately 25 percent is processed at the Baltimore Composting Facility and converted to compost and 25 percent is land applied on agricultural land. It is expected that the 80,000 tons of sludge generated at the Patapsco Wastewater Treatment Plant will continue to be heat dried on site prior to distribution and marketing.

The City plans to complete several Capital Improvement Projects that will optimize water treatment plant process residual (sludge) collection and conveyance to wastewater treatment plants for processing and subsequent disposal.

5.3.9 Leaves

The City will continue to collect leaves through the use of vacuum units and mechanical sweepers, while also providing seasonal residential collection of bagged leaves. The municipal mulch site at Camp Small will continue to

PLAN OF ACTION

be the end destination for these leaves, so that they may be converted into mulch and compost. Leaf generation should increase throughout the period covered by this plan due to the City's streetscape and Main Streets programs.

The City will assess the need for an additional or expanded composting and wood-chipping facility should the need arise. At present, Camp Small is able to handle the compost and wood-chip material that is collected and delivered by Solid Waste and Transportation crews.

5.3.10 Christmas Trees

Similarly to leaf collection, the City will continue the seasonal collection of Christmas trees. The City will continue its popular program of mulching Christmas trees in January at central locations in the City, providing residents who bring their trees bags of mulch in return. As population in the City is projected to decline, so should the number of Christmas trees.

5.3.11 Marine Debris

The City will continue to provide cleaning services for the inner harbor and surrounding waterways through the use of watercraft. It is hoped that the number of boats used can be increased so that these waterways may be more thoroughly cleaned.

It is difficult to predict the future generation of marine debris, since it is typically independent of population projections. It is assumed, however that it will remain relatively constant throughout the period covered by this plan.

5.3.12 Parks

The City will continue to provide park services as an important part of an integrated urban landscape. Therefore, the City is obligated to provide waste collection and cleaning services at the five major parks and at other designated parks in the City. Park waste generation is also largely independent of population fluctuations. However, it is assumed that the waste generated will remain constant throughout the next ten years.

5.3.13 Street Sweeping

The City will continue to provide street and alley sweeping services, likely utilizing significantly updated equipment to do so. Tonnage from street sweeping should remain constant throughout the period covered by this plan.

5.3.14 Animal Manure

While the City will continue to collect animal manure from the Baltimore Zoo, it may be used as compost or fertilizer in the future, rather than just as alternative cover at QRSL. Obviously, the amount of manure to be generated at the zoo over the next ten years cannot be precisely estimated, but the City will continue to provide collection and disposal services, as needed.

5.3.15 Waste Prevention and Reduction

A significant platform of the City's Ten-Year Solid Waste Management Plan involves the reduction of waste. The City of Baltimore plans to take the following actions to maximize waste prevention and reduction:

1. Poll City businesses to identify current waste reduction activities being practiced and publicize the strategies.
2. Incorporate waste prevention and reduction in all educational and outreach materials and activities of the Education and Enforcement Division of the Bureau of Solid Waste.
3. Continue to develop with regional partners public service ads and educational messages about waste prevention and reduction. Seek corporate sponsors to broadcast these messages as widely as possible.
4. Work with the Northeast Maryland Waste Disposal Authority to promote waste reduction strategies in the commercial sector through support of the business recycling forum, performance of waste audits, and providing training programs to businesses.
5. Expand the diversion of reusable items from the city's waste stream to charitable, non-profit organizations. Promote citizen donations to non-profit organizations.
6. Encourage owners/managers of multi-family dwellings and apartment complexes to provide recycling facilities (bins, dumpsters, etc.) for their tenants.
7. Investigate the need for a waste prevention/waste reduction committee, possibly as a part of the City's newly appointed Recycling Committee.

5.3.16 Recycling

To process the recycling it is collecting, the City has generally relied on the private sector. It intends to continue this

PLAN OF ACTION

approach over the next ten years.

The City has executed contracts with private recycling firms to process the mixed paper and mixed containers, which represent most of the recycling tonnage the City is collecting. Similarly, contracts are in place for the smaller quantities of white goods and mixed paper the City is recycling. As the amount of all recycling collected is expected to increase in the next ten years, the City anticipates that the processing capacity in the private sector will increase proportionately, although the cost of processing to the City has varied, depending on the market for recovered materials.

To provide for processing of the increasing amounts of recycling that it will collect in the next ten years, and to expand recycling, the City plans to take the following actions:

1. The City plans to continue monitoring the market for recovered materials and adjust its budget for recycling processing accordingly. The City plans to actively support regional and State efforts to reduce tipping fees for recycling materials through improved marketing of recovered materials.
2. The City plans to expand its solicitation of business support for recycling and modify its procurement practices to increase the use of supplies containing recycled materials. These actions will be sustained for the next ten years.
3. The Baltimore Development Corporation, the Baltimore City Planning Commission, Empower Baltimore and the Bureau of Solid Waste will continue to pursue a recycling business strategy for the City of Baltimore.
4. During the next ten years, the City will execute additional contracts with private recycling companies as required to process the increasing amounts of mixed paper, mixed containers, white goods and office paper it will collect. The City may execute new contracts for processing additional recycling as the collection program expands to a wider range of materials.
5. The City will seek to work cooperatively with its neighboring counties to assess the need for and feasibility of developing a publicly sponsored system of materials recovery facilities in the Baltimore region. Such regional facilities may be privately operated under contract or may be public.

5.4 IMPLEMENTATION SCHEDULE

Table 5-1 below shows the proposed implementation schedule of significant projects and events during the period covered by this plan. This schedule is purely a projection and does not guarantee that these events will take place at their specified times, if at all. It does not include projects that may become necessary as time passes and events develop. It should be considered a “best case” scenario of the City’s plan of action over the next ten years.

TABLE 5-1
PROPOSED SOLID WASTE IMPLEMENTATION SCHEDULE: 2002 THROUGH 2011

DATE	PROJECT	IMPACT
March 2003	Conduct Fly-over of QRSL	Will be used to better estimate the remaining capacity at QRSL
April 2003	Cell 6, Phase II of QRSL Completed	Will ensure that QRSL will be able to continue to accept waste for disposal
June 2003	New Routing Plan for City Implemented	Will significantly change the way trash is collected in the City; may involve 1 + 1 collection in certain areas of the City
December 2003	Completion of Facility Improvements at QRSL	Will enable the City to better perform its duties at QRSL
March 2004	Conduct Fly-over of QRSL	Will be used to better estimate the remaining capacity at QRSL
March 2005	Conduct Fly-over of QRSL	Will be used to better estimate the remaining capacity at QRSL
March 2006	Conduct Fly-over of QRSL	Will be used to better estimate the remaining capacity at QRSL
March 2007	Conduct Fly-over of QRSL	Will be used to better estimate the remaining capacity at QRSL
March 2008	Conduct Fly-over of QRSL	Will be used to better estimate the remaining capacity at QRSL
June 2008	Re-open a yet-to-be determined closed Cell at QRSL	Part of overall plan to increase disposal capacity at QRSL
March 2009	Conduct Fly-over of QRSL	Will be used to better estimate the remaining capacity at QRSL
March 2010	Conduct Fly-over of QRSL	Will be used to better estimate the remaining capacity at QRSL

5.5 FINANCING WASTE DISPOSAL SYSTEMS

The financial resources of Baltimore City are severely limited. It is essential that monetary costs and benefits will be addressed in describing and evaluating the City's solid waste management system, as well as in planning for the future.

5.5.1 Costs of Solid Waste Management

In Fiscal Year 2001 the City spent a total of \$63.9 million to collect and dispose of solid waste. As shown in Table 5-2, \$24.9 million of this was spent in the Special Services section. This consisted of street, alley, lot and park cleaning, business district cleaning, mechanical street cleaning, graffiti removal and eviction and fire debris removal. An additional \$39.0 million was spent on residential waste collection and disposal including \$16.2 million for waste collection and transport, \$18.1 million for disposal, \$2.0 million for administration, engineering, office and field support; and \$2.7 million for other costs which include Sanitation Enforcement and Recycling Education. These expenditures were funded through the City's operating budget and are considered as an annual operating cost.

In addition to these operating costs, the City spent a total of \$1,095,838 in Fiscal Year 2001 for solid waste capital projects. As shown in Table 5-3, these costs consisted mainly of payments for the development of Cell #6 Phase II at QRSL, Sweeper Pad Construction at the Northwest Transfer Station, and maintenance of the Monument Street Landfill. The amount of current City revenues spent on solid waste capital projects to date at QRSL is \$37.3 million.

Past use of borrowed funds to acquire and develop the landfill and implement other solid waste capital projects has resulted in ongoing debt service obligations. As shown in Table 5-4, Fiscal Year 2001 debt service payments totaled \$456,238.

Total solid waste management expenditures for Fiscal Year 2001 using current City general fund revenues were approximately \$34.2 million. For Fiscal Year 2002, the City budgeted \$30.9 million in general funds to collect and dispose of solid waste.

**TABLE 5-2
CITY'S SOLID WASTE MANAGEMENT EXPENDITURES (DOLLARS)**

	Actual Fiscal 2001	Budgeted Fiscal 2002
Maintenance/ Street & Alley Cleaning		
Graffiti Removal	311,633	224,439
Removal of Eviction Chattels	745,161	495,919
Removal of Fire Debris	458,605	445,348
Business District Cleaning	2,832,403	2,227,097
Street, Alley, Lot and Park Cleaning	17,092,185	18,292,633
Mechanical Sweeping Operations	2,363,016	2,292,793
Seasonal Operations	706,604	805,225
Rat Rub-out	359,452	335,201
SUBTOTAL: Maintenance	24,869,059	25,118,655
Collection/ Transport		
Mixed Refuse (rear loaders) Collection	14,354,469	14,344,742
Marine Operations	498,754	641,392
Northwest Transfer Station Operations	1,333,079	877,804
SUBTOTAL: Collection / Transport	16,186,302	15,863,938
Disposal		
Landfill Operations	3,458,715	970,391
BRESCO Tipping Fees	14,665,596	14,482,000
SUBTOTAL: Disposal	18,124,311	15,452,391
Other:		
Sanitation Enforcement	1,131,691	1,193,521
Landfill Trust Fund	800,000	800,000
NE MD Waste Disposal Authority	-	5,000
Recycling Education	770,852	798,027
SUBTOTAL: Other	2,702,543	2,796,548
Administration		
Bureau Administration *	1,971,862	2,375,999
SUBTOTAL: Administration	1,971,862	2,375,999
GRAND TOTAL:	63,854,077	61,607,531

* Includes Administrative Support, Garage, Personnel, Engineering Support

TABLE 5-3
CITY'S CAPITAL EXPENDITURES FOR SOLID WASTE MANAGEMENT
(Dollars)

	Actual Fiscal 01	Budgeted Fiscal 02
Quarantine Landfill Development		
Cell #5 (517-029) Conditional Purchase Agreement Funds	-	71,458
Cell #6 (517-030) General Obligation Bond Proceeds	57,585	1,607,920
Cell #6 (517-042) General Obligation Bond Proceeds	438,144	108,029
Quarantine Road Sanitary Sewer (517-078) Mayor and City Council and Other Funds	-	199,038
Other Solid Waste Capital Projects		
Bowley's Lane Landfill (517-063) Other Funds	35,370	82,032
Monument Street Landfill (517-064) Mayor and City Council and Other Funds	266,537	-
Sweeper Pad Construction (517-068) Mayor and City Council and Other Funds	250,262	-
Street Run-off Mitigation - Marine Terminal (517-079) Mayor and City Council and Other Funds	902	410,695
Western District Yard Improvements Mayor and City Council and Other Funds	45,503	387,423
Street Cleaning Facility (517-353) Mayor and City Council and Other Funds	1,535	798,465
Street Cleaning Transfer Station Eastside (517-082) Mayor and City Council and Other Funds	-	400,000
TOTALS	1,095,838	4,065,060

TABLE 5-4
ANNUAL DEBT SERVICE COSTS FOR SOLID WASTE CAPITAL PROJECTS

Debt Instrument	Project	Actual Fiscal 99	Budgeted Fiscal 00
General Obligation Bonds			
1st Incinerator Solid Waste Disposal Loan (bonds of 1980)		\$258,447	\$88,988
1st Incinerator Solid Waste Disposal Loan (bonds of 1995A)	Pulaski Incinerator # 4	\$0	\$0
1st Solid Waste Disposal Loan Disposal Loan (bonds of 1989 Series)	Various Projects & Landfills	\$48,444	\$91,506
1st Solid Waste Disposal Loan Disposal Loan (bonds of 1995A)	Various Projects & Landfills	\$17,259	\$5,943
Conditional Purchase Agreements (IDA)			
G.E. Capital - Addendum # 1 (Caterpillar)		\$132,088	\$0
TOTALS:		\$456,238	\$186,437

The City's future capital investment in solid waste management is dependent upon the availability of funds and funding sources for projects. Table 5-5 outlines the City's approved allocation for solid waste management capital funding through fiscal year 2008. The City's Department of Planning is responsible for the allocation of capital funds to City agencies based on agency needs and the availability of funds. The fiscal year 2003 request for the Bureau of Solid Waste reflects no allocation of funds for the three projects proposed. However, the lack of funding for these projects will not profoundly impact the City's ability to provide waste management services at its current level of efficiency.

TABLE 5-5
BUREAU OF SOLID WASTE CAPITAL FUNDS ALLOCATION: FY 2003-2008

CITY OF BALTIMORE --- CAPITAL IMPROVEMENT PROGRAM

BOARD OF ESTIMATES RECOMMENDATIONS FOR DPW SOLID WASTE - CONST. PROGRAM SIX-YEAR PROGRAM - IN THOUSANDS OF DOLLARS

517-022 SOLID WASTE VEHICLE STORAGE/REPAIR FACILITY Location - 3625 E. Monument Street

A new facility is to be constructed to house street sweepers, street cleaning equipment and supplies, as well as a repair shop for maintenance of street cleaning equipment. The existing storage/repair facility is in poor condition and is too small to accommodate much of the equipment.

FUND SOURCE #	SOURCE OF FUNDS	TO DATE	2003	2004	2005	2006	2007	2008	TOTAL
200	General Funds	200							200
999	All Other Debt		ZERO	ZERO					ZERO
TOTAL		200							200

517-353 RENOVATIONS TO FRANKLINTOWN RD STREET CLEANING FACILITY Location - 201 N Franklinton Rd

This facility houses the Bureau of Solid Waste recycling, bulk trash and rat eradication operations. Improvements would provide safer and more efficient operations as well as more storage and operational space.

FUND SOURCE #	SOURCE OF FUNDS	TO DATE	2003	2004	2005	2006	2007	2008	TOTAL
200	General Funds	800							800
800	City Motor Vehicle Revenue Funds		ZERO						ZERO
TOTAL		800							800

517-500 SOLID WASTE FACILITY RENOVATIONS Location - Citywide

Renovations are to be made to various Solid Waste facilities including administrative areas, locker rooms and restrooms, stairways and walkways, landscaping and paved areas. These improvements would enhance safety and operations at the facilities.

FUND SOURCE #	SOURCE OF FUNDS	TO DATE	2003	2004	2005	2006	2007	2008	TOTAL
200	General Funds	175	ZERO						175
800	City Motor Vehicle Revenue Funds	175							175
TOTAL		350							350

5.5.2 Costs of Quarantine Road Acquisition and Development

The continuing expansion of QRS� requires a substantial capital investment by the City. Since debt service on funds borrowed to acquire and develop the landfill requires ongoing expenditures, it is useful to review the financing and costs of this facility to date.

The City acquired the site for the landfill in 1984, at a price of \$9.3 million. State grants were received for half of this cost. The balance was funded through the 5th Solid Waste Disposal Loan of 1980, \$1.9 million in general obligation bonds and \$2.75 million from the Northeast Maryland Waste Disposal Authority, representing proceeds of the sale of the former Pyrolysis Plant.

Other costs related to acquisition, design of the landfill and construction of the first cell, totaled \$4.1 million. A portion of the necessary funding came from current City revenues (general fund and "other" funds). The balance of the initial development cost (\$3.5 million) was financed through a conditional purchase agreement. The first cell was completed in 1985 (see Figure 4-1 for location of cells).

Construction of the second cell began in 1986; it extended into 1987. Construction contract and inspection costs for the second cell totaled \$2.4 million. Current revenues were used to fund the construction of Cell #2 (general fund and "other" funds).

Current revenues were used also to construct Cell #3. Construction contract and inspection costs for the third cell totaled \$860,000; with construction beginning in late 1987. It was completed in the summer of 1988. Other costs related to the design and construction of the second and third cells totaled \$190,000. These costs were funded through the 1st Solid Waste Loan of 1984 as well as current revenues.

Construction of the fourth cell began in the fall of 1988 and was completed 13 months later. The construction contract and inspection costs of \$3.2 million were funded with borrowed funds (a \$2.6 million conditional purchase agreement and approximately \$375,000 in general obligation bonds) and current revenues.

Construction of Cell #5 began in the spring of 1990, and was completed in the fall of the same year. Construction contract and inspection costs for the fifth cell totaled \$4.4 million. These costs were funded with a conditional purchase agreement.

Other costs for site preparation for Cell #5 and landfill design and construction incurred while Cell #4 and Cell #5 were under construction totaled approximately \$1.3 million. These costs were funded by conditional purchase agreement funds (\$390,000) as well as general obligation bonds and current revenue.

Construction of Cell #6, Phase I began in June of 1992 and was completed in November of 1993 at a cost of \$8.4 million. This was funded by general obligation bond proceeds.

In summary, capital expenditures for the acquisition and development of cells #1 through #6 at QRSL have totaled \$34.6 million. A total of \$10.0 million in conditional purchase agreement funding has been used to meet these costs. These conditional purchase agreement funds were supplemented with a combination of State grants, "other funds", City general funds, and general obligation bonds.

5.5.3 Post-Closure Costs for QRSL

While QRSL is roughly twenty years removed from closure, Federal regulations require that the City provides proof that it is financially able to properly close the landfill and to provide post-closure care for the approximately 30 years needed afterward. The City hired a consultant to provide an estimate of this cost, so that the City could put the required money aside for this matter.

5.5.4 Revenues from Solid Waste Management

In Fiscal Year 2001, the City received a total of \$7.5 million in revenues derived from solid waste collection and disposal. As shown in Table 5-6, most of these revenues (89 percent) were generated at QRSL. Payments from BRESCO, including tipping fees for ash disposal, totaled \$3.5 million.

TABLE 5-6
CITY'S SOLID WASTE MANAGEMENT REVENUES
 (Thousands of Dollars)

	Actual Fiscal 2001	Budgeted Fiscal 2002
Landfill Disposal Tipping Fees	3,904	4,000
Solid Waste Surcharge	2,110	2,900
BRESCO Fees & Sale/Leaseback Rebate	938	1,020
BRESCO Rent	475	490
Environmental Permits-(Hauler Permits)	-	100
Landfill Royalties	-	-
Disposition of Eviction Chattel	2	3
Scrap Metal/White Goods (A)	28	15
(After CFC and PCB Removal)	-	-
Office Paper (B)	4	4
Total	7,461	8,532
Notes: A Scrap Metal Contract with The David Joseph Company B Office Paper Contract with Vangel Paper, Inc.		

Detailed information on landfill tipping fee revenue for Fiscal Year 2001 is presented in Table 5-7. Actual tonnages of wastes accepted are listed, together with charges that accrued for those tonnages. It can be seen that the greatest amounts of wastes accepted do not necessarily yield the greatest amount of revenue, because tipping fees vary for different users of the landfill. For example, the fees charged for BRESCO ash, industrial sludge and other waste were considerably lower than the standard \$67.50 per ton fee. No tipping fees are charged for disposal of wastes collected by the Bureau of Solid Waste or City agencies whose work is supported by the City's general fund. In summary, the QRSL generated \$3.9 million in Fiscal Year 2001.

5.6 CHANGES DUE TO ASSESSMENT

The assessment of the solid waste disposal systems performed in Chapter 4 has revealed a solid plan for the management of solid waste throughout the next ten years. With the implementation of the CITISTAT performance measuring and monitoring tool introduced in July 2000, the City has a powerful tool for the analysis and modification of the solid waste disposal system in the City.

There are two areas where changes may need to be considered in the present solid waste disposal system. The first area involves the moratorium on construction of incinerators in the City. While this ordinance was designed to help reduce the emitting of harmful air pollutants into the atmosphere, it may also prevent the City from constructing a needed crematorium for dead animals. The advantages and disadvantages of lifting this moratorium will need to be discussed in the near future.

Secondly, the efficient routing of the City's waste collection vehicles could be dependent on the public's willingness to change trash collection days and the possible relinquishment of one of their two mixed refuse collection days. As solid waste collection and disposal costs continue to rise, these and other options will be studied closely to see if their implementations will be feasible and worthwhile.

TABLE 5-7
LANDFILL TIPPING FEE REVENUE FOR FISCAL 2001
 (Thousands of Dollars)

Waste Category	Tonnage	Actual Revenue
Incinerator Ash from BRESCO	216,147	2,253
Medical Waste Incinerator Ash	-	-
Private Ash	-	-
Patapsco WWTP Incinerator Ash	-	-
Bulk Collected by Private Haulers	153,496	-
Bulk Collected by City	34,278	-
Bulk from Non-Profit Organizations	19,505	-
Fluff from Car/Appliance Dismantling	-	-
Industrial Sludge	22,091	15
Public Agency Charge	3,567	156
Other Industrial Waste	3,057	12
Street Dirt and Litter	725	-
Rubble/Construction Debris Collected by City	12,540	264
Rubble/Construction Debris Collected by Private Haulers	-	-
Soil	-	-
Scrap Metal/White Goods		120
Small Haulers	22,349	271
Mixed Refuse Collected by Private Haulers	153,496	356
Mixed Refuse Collected by City	22,449	-
Mixed Refuse from Medical Facilities	-	-
Grit/Screenings from Back River WWTP	7662	457
Tires Collected by City	0	-
Tires Collected by Private Haulers	0	-
TOTAL		3,904